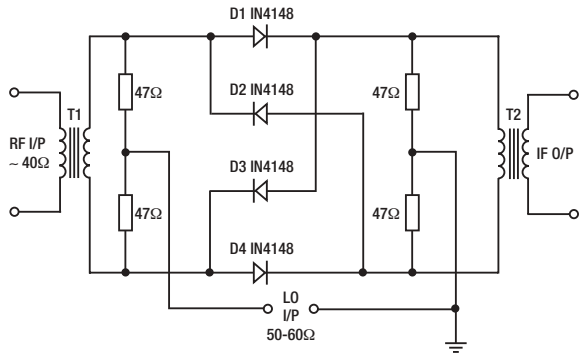
FIG 5 © RADCOM 467



50Ω input by using an 8:7 turns ratio. To provide a 50Ω input impedance for the LO signal, the input and output transformers could be wound for a 3:2 turns ratio, and the resistors changed to 47Ω, as in **Fig 5.** More LO signal would get to the diodes in this case, so this version ought to be better for strong-signal handling than my first attempt at an improved ring mixer, but with slightly increased insertion loss. The transformer step-down ratio and the LO fixed resistor values can be juggled to give the best compromise between insertion loss and signal handling. I have no figures to back my belief that this mixer circuit is better than the original diode ring mixer, just some subjective tests done on 7MHz years ago with a 3.5Vp-p square wave LO signal. I think it's an improvement, but it requires someone with the right test equipment to determine whether it is, or not."

Incidentally, Colin Horrabin, G3SBI, tells me that he has recently tried the effect of biasing the Fairchild FST3125 fast switching bus in his H-Mode mixer. Preliminary results seem most promising, particularly for up-conversion but they also confirm that present production of these devices do not give quite the performance of the original production devices as switching mixers. It is hoped that the new circuit with biasing will be described before long in 'TT'.

Fig 5
G3UUR's further-improved modified diode ring mixer. T1 – 6t to 4t on Fair-Rite 2865000202 core for 1 – 30MHz. T2 – 4t to 6t on core as for T1.

HERE & THERE

Jan Martin Noeding, LA8AK, writes, re 'TT' January 2005: "I am rather surprised to read – once again – that the German Torn E.b covers 100-6670kHz. I have seen many examples of this receiver, but have never seen a model with this frequency range. The 6670kHz may be right for the 1933 Spez 445 version, but every Torn E.b I've seen covers 98 – 7095kHz. There is another version, with later valves (RV2, 4P700) sold to the Swedish army and covering 195 – 15,410kHz. More details on **http://home.online.no/~la8ak/22a.htm**

CLEANING VARIABLE CAPACITORS

As a March 'Here & There' item, M0MAC sought information on a method of cleaning the plates of variable capacitors recovered from old valved equipment that he believed was published some years ago in 'TT' using baking powder and hot water. This has produced a number of varied responses.

John Alford, G3DOE, confirms that some baking powder should be dissolved in hot water. The capacitor is immersed in the solution and left for about an hour. A recent test has confirmed that components come out looking like new. He insists that it must be baking powder and not caustic soda.

George Ashford, G2AOZ, dates relevant 'TT' items to (1) March 1981 p224, with a follow-up note (2) in May 1981. He adds: "I, too, have a recollection that baking powder (sodium bicarbonate) entered the equation".

(1) A tip given by Bill Pickens, WB5NGF (*QST*, December 1980, p54): "For corroded and otherwise dirty variable capacitors, which are almost impossible to clean with a brush, I use a mixture of 4oz (120ml) of concentrated lemon juice in eight to 10oz (240 to 300ml) of water placed in a saucepan. By placing the capacitor in this mixture and boiling for 10 to 15 minutes, the device can be made to look like new. A few drops of liquid detergent might be helpful. A drop or two of oil should be placed on the bearing when dry." The item also contained my comment: "The importance of ensuring that any variable capacitor used in a high-grade VFO is really clean has been stressed on a number of occasions, up to and including the use of an ultrasonic cleaning bath."

(2) WB5NGF's tip stirred R L Halls, G3EIW, to mention that, for the past 30 years, he had used Goddards Silver Dip for cleaning all silver-plated radio components, including variable capacitors. He finds that this transforms blackened silver items into a gleaming 'like new' condition in just a few seconds. Any grease or oil should be removed first with hot detergent. He added a warning: "Goddards Silver Dip can stain 'stainless steel'; any attempt to carry out operations on the stainless kitchen drainer is likely to make you highly unpopular with 'she who must be obeyed'."

Alan Strong, G3WXI, recalls that a colleague used to clean intricate silver components very successfully by standing them on a sheet of aluminium cooking foil placed in the bottom of a polythene washing-up bowl containing a solution of washing soda [sodium carbonate]. He restored a substantial portion of a Chain Home [radar] transmitter that he used in his research work in this way. Unfortunately, I cannot remember whether the component must or must not be in contact with the aluminium foil, but I think he used to cover the foil with a cloth."

I believe that for cleaning fine antique silver objects, cigarette ash is preferable to commercial cleaners such as Silvo that can be rather abrasive. But I don't want to encourage this since the cigarette smoke can be as harmful (long term) to radio equipment as to humans! ◆